Nutrition News

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THE ARMY'S MEDICAL NUTRITION LABORATORY

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The U. S. Army Medical Department has certain responsibilities regarding nutrition in the troops, and has centered much of its nutritional research in the Medical Nutrition Laboratory. The Laboratory really had its start in 1917-1918. During the inter-war period, Medical Department research on Army nutrition decreased to a laboratory on paper. Active work started on a small scale early in World War II in Washington, D. C.

In 1944 the Laboratory was moved to Chicago to be near the big food industries and to be closely connected with the Quartermaster Subsistence Research and Development Laboratory. Both in personnel and variety of activities, the Laboratory has expanded considerably since V. E. Day.

Under Army Regulations it has three missions. The first is to investigate the health of troops in all environments to make sure that they are well fed, as healthy and as fit as is compatible with local danger, disease, and environment. The second is to prevent and to treat disease and damage as far as is possible by nutritional and metabolic means. The third is to be in a position to observe and make recommendations on the nutrition and health of civil populations under military control.

Studies in Three Missions

Present Laboratory personnel have made studies under all three of its missions. The health of troops in all environments has been studied in the desert (1942 and 1943); in the Arctic and sub-Arctic (1944, 1946, and 1947); in the mountains (1944 and 1946); in the Pacific (1945); and in India and Burma (1944 and 1945). Clinical investigation is being conducted now on liver disease, neurological disorders, anemia in relation to chronic infection, and a collaborative study is being made of vitamin A metabolism in lung disease.

In 1945 the Laboratory made a thorough-going study of the clinical manifestations of experimental deficiency in the lesser-known members of the vitamin B complex (including folic acid, biotin, and pantothenic acid). Studies on civilian populations were made by teams sent out to Holland before V. E. Day and to Austria after V. E. Day.

Personnel numbers sixty-eight and is about half military and half civil service. There are a Medical Dietetics Division and a Technical Research Division with three branches: animal, biochemical, and microbiological research. A Clinical Investigation Division includes medical, surgical, pathological, and biochemical research.

Hospital Feeding

Right now the Medical Dietetics Division is engaged in dietetic problems which deal with the preparation of special diets for hospital feeding. They are developing attractive and palatable recipes for foods small in bulk but high in calories and fortified with large amounts of protein. Such foods are just as acceptable and not more expensive than high protein foods in their natural forms. During the preparation, laboratory food specialists develop, standardize, and test the recipes.

The Animal Branch is working on the changes which occur in animals during rehabilitation after malnutrition. Experiments are particularly on the effects of calories, salts, and low protein intake, and what happens during rehabilitation after starvation. They are concerned primarily with any permanent changes which cannot be rectified during rehabilitation and are ultimately interested in determining the best diet for rehabilitation of starved humans.

Dr. Johnson

Agenized Flour Experiments

Experiments done on white wheat flour treated with "agene" (a commercial bleaching agent) producing epilepsy in dogs have recently been reported in technical publications.

Other investigations call for observations on troops or on hospital patients. When this is necessary, teams are sent out to gather information and record data in the field or in Army hospitals.

The whole aim of the Medical Nutrition Laboratory is to assist in assuring a healthy, well-fed Army. Since soldiers are not different from civilians, medically speaking, the results of the Laboratory's work are directly applicable to many problems in ordinary civilian life.

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Glances AT NUTRITION RESEARCH

Research experts continue to explore the field of nutrition for more precise knowledge regarding diet essentials for all ages. In this issue's nutrition abstracts, attention is focused toward new facts concerning nutritive requirements of the body and the contributions made by certain foods.

Milk Protects Against Caries — Milk in the diet protects cotton rats against dental caries according to results from University of Wisconsin experiments. Animals fed a diet of liquid milk developed no caries at all, and even when milk was fed with fairly high levels of fermentable sugars it exerted a highly significant protective action. These sugars were definitely shown to produce caries when fed alone in a dry ration. When rats received about one-third of their total calories from milk and the other two-thirds from the cariogenic sugar ration, dental caries was reduced by fifty percent over that of the controls receiving no milk.

—Proc. Soc. Exp. Biol. & Med. 66 :67 1947.

Ascorbic Acid Requirements—The National Research Council's recommended allowances of vitamin C for pregnant and lactating women have been supported by recent research. Two predisposing dietary conditions are of importance, however. One is that the prenatal nutritional status of the mother must have been satisfactory, and the other is that vitamin C must be supplied by natural foods in a diet adequate with respect to other dietary essentials. The studies indicated no relationship between vitamin C intake and its secretion in milk. Excretion in the urine also was not related to level of intake or secretion in milk.

—J. Nutrition 33 :601-621 (June) 1947.

Adolescent Vitamin C Requirement — A recent study in a children's home to determine the ascorbic acid requirement of adolescents indicates that they require somewhat more of this vitamin per kilogram of body weight than do younger children or adults. However, the National Research Council allowances were found to be adequate. The recommended intake for adolescents brought ascorbic acid blood plasma levels above that considered just adequate but not quite to the saturation level. During the strain of adolescent growth it would probably be advisable to maintain all children near saturation, and, since recommended amounts accomplish that, diets should be planned to include this amount. Blood levels of ascorbic acid on the children's regular diet were slightly below those accepted as adequate.

—J. Nutrition 33 :529 (May) 1947.

Meat Promotes Hemoglobin — Strained meat can now be added to the formula of bottle-fed infants at a very early stage according to a preliminary study by Ruth M. Leverton, Ph.D., and George Clark, M.D. Infants studied were between six and fourteen weeks of age. The meat supplement checked the hemoglobin drop characteristic of this age and promoted the formation of hemoglobin and red blood cells. Nurses and pediatricians observed no adverse effects from the higher protein diet.

—J. Am. Med. Assn. 135 :1215 (Aug.) 1947.

Dr. Johnson

The author of the lead article, Dr. Robert E. Johnson, received his doctorate of philosophy in biochemistry from Oxford University and his doctorate of medicine from Harvard. For eleven years he worked at the Harvard Fatigue Laboratory on environmental physiology, and took his present position in the fall of 1946. During World War II he worked on nutrition in relation to environment as consultant on rations to the Quartermaster General.

Improving Nutrition

Projects begun by the United States Department of Agriculture under the Research and Marketing Act of 1946 have been announced, among them the following studies important for improved nutrition: 1. Current family food consumption, 2. Dietary habits and nutritional status of individuals in population groups as a means of estimating nutritional needs, and 3. Nutritive values of food and ways to improve palatability, particularly of foods for wh' h an expanding market is needed.

Child Aid Program

Supplementing and strengthening world child aid programs is the objective of the International Children's Emergency Fund. In October this organization began shipping food to nearly four million children and nursing and pregnant mothers. Dr. Martha Eliot was loaned to the Fund to plan and direct the technical services. During her survey in Europe previously, she found needs greatest for food, especially milk.

CHINA FACES TREMENDOUS OBSTACLES TO IMPROVED NUTRITIONAL STATUS

By Katherine P. Riddle, Instructor
Truth Hall Middle School, Peiping, China

After five months in Peiping, China, one begins to get the feel of the tremendous nutrition problems of this area. Several weeks ago I visited Yenching University and discovered some of the really overwhelming difficulties faculty nutrition workers in China must overcome.

They have four major problems to face. First is the lack of printed material. There is almost no simple nutrition material in the Chinese language. Second is the lack of data about food values—no work has been done for six years to increase information about the nutritional values of food. Third is the nearly starving condition of the students themselves. Lack of food destroys ambition, and the pupil just has no desire to do much of anything. Fourth is the lack of equipment, materials, and money.

Diet Deficiencies

I learned several interesting facts on my trip to the University — some of which I had guessed but was glad to have confirmed. First, the extreme deficiencies in the diets here are calcium, vitamin A, animal protein, and vitamin C, but the last only seasonally. The solution is obvious—milk. But for the Chinese there are a good many obstacles to that solution.

There are only three small dairies in the city, and those are patronized mainly by foreigners. We still have to boil all our milk. Canned and dried milk costs nearly ten times as much as fresh. There are simply no cows to speak of and no inexpensive source of milk.

Don't Use Cheese

The use of cheese in place of milk is not feasible because very few Chinese will eat cheese. They don't like its smell or its taste. In hot weather ice cream stands go up all over the place, but sanitary conditions under which the ice cream is made and dispensed leave much to be desired. The milk supply is not pasteurized, and production standards are far from satisfactory.

There are a few milk stations being supported by relief organizations, but they are too few in proportion to the number of children to make a real contribution to solving the nutrition problem. All children are breast-fed for well over one year after birth, and since we have good sunshine the year around there are not many obvious cases of rickets in this section.

Food Habit Problem

There is a food habit problem, too. Most Chinese prefer white flour breads to breads made from other grains, even though the latter may be less expensive. You can't buy whole-wheat flour in the market.

Any kind of fats and oils are prohibitively high in price. We are paying over a dollar in gold for a pound of suet or lard now.

We have certain responsibilities in a boys' high school near here. The usual diet of the boys in this high school is of "wotou" (wawtoe)—a steamed bread made with corn, millet, soy meal, and flour. In winter they have salted turnips with it once a day. In summer they get a few more vegetables, but eggs and meat are out of the question. The nutrition department of Yenching undertook a demonstration chicken-feeding experiment, and they were startled at its graphicness—the chickens fed a "student diet" all died.

Soy products (soy curd, soy sprouts, soy oil, etc.) are used but definitely are not poor man's food. I am hoping this fall to do an experiment in the school even though it is merely a matter of weighing and measuring the children and keeping track of their food intake.

As you can see there is no end to opportunity. Unfortunately there is an end to time and resources. Nutrition problems in China now offer a real challenge.

SCHOOLS AND HEALTH AGENCIES COOPERATE TO TEACH CHILDREN HEALTHFUL LIVING

By Arthur J. Lewis, Jr., Supervising Teacher, Health Education
Denver Public Schools, Denver, Colorado

Developing healthier children is the common goal of schools and community health education agencies. Cooperation is the best way to reach this worthy objective.

Before the goal can be reached it must be agreed upon. Schools and community health agencies must understand and coordinate their approaches. The object of health education is to help boys and girls lead healthful lives. Yet we judge the value of our teaching by how much children know about health habits, not how well they practice them.

Strange Methods

We would think it strange indeed if a physician asked a patient what his pulse rate should be instead of counting it. Yet we do much the same thing when we evaluate health instruction on an informational test. The child who knows he should drink milk but doesn't isn't helping his health.

Teaching for better health behavior requires a different approach than teaching just health facts. The latest psychology of learning gives a clue to the approach. It states, in part, that behavior is changed as the individual solves a problem that is real to him. Boys and girls do have some real problems. When we show them how better health behavior solves these problems, our health instruction is of real value.

Identify Concerns

The Denver Public Schools conducted an intensive survey two years ago to identify some of these common concerns. With 3,600 pupils expressing their interest in 250 different projects, the studies indicated how information can be presented so students will be most impressed.

For example, the interest index was very low for listening to talks about vitamins. When the subject became "To find out how vitamins protect your health" pupils responded much more favorably. Teen-age girls weren't interested in making charts showing the Basic Seven foods, but "To learn what

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—that a versatile electric singe-er will grill cheese sandwiches, singe poultry, or brown casserole dishes?

—that celery and pepper flavor are augmented in frozen foods; that onion and salt diminish?

—that most cinnamon used in America is the powdered bark of the cassia tree, which is more pungent than the bark of the true cinnamon tree?

—that a new aluminum foil wrapping for butter will prevent weight loss and absorption of flavor?

—that a new coconut syrup for use on ice cream will soon be on the market?

—that people in the United States consume more ice cream than do the people of any other nation?

—that pliofilm used as a rind substitute in making cheddar cheese greatly reduces waste?

—that a low-cost "milkburger," made from dried milk and yeast, has as much protein as lean beef and can be used in recipes calling for ground meat?

THINGS YOU'LL LIKE TO READ

Army feeding practices and problems all over the world have been analyzed in the 94-page study **Feeding Problems in Man as Related to Environment** by Dr. Robert E. Johnson and Dr. Robert M. Kark. (Chicago: Quartermaster Food and Container Institute. 1947. Available free on request.) Information from surveys and ration trials in all climates shows the relationship of physical surroundings to food needs. Of particular interest to the nutritionist is a section containing generalizations on observations and nutrition findings.

Teachers of high school and college students will find a useful nutrition study guide in Alberta Dent's **Foods and Nutrition Workbook** (Ann Arbor: Edwards Brothers, Inc. 1947.) The five units of study include problems in food selection, nutrition and health habits, adequate dietaries, and special nutrition needs for the high school-college age group. An outline of essential nutrition information is included and supplies basic facts for teaching.

Leonard A Maynard has revised the first edition of his **Animal Nutrition** (New York: McGraw-Hill Book Company, Inc. 1947.) into an up-to-date application of nutrition to feeding practices. The developments during the nine years since the first volume was written have made extensive revision necessary. The principles of nutrition and newer nutrition knowledge are first discussed; then their relationship to animal food needs is considered. The emphasis on animal feeding illustrates experimental methods and practical application of nutrition research.

In the fourth edition of **Infant Nutrition** (St. Louis: C. V. Mosby Company. 1947.) P. C. Jeans again brings W. McK. Mariott's book up to date. The numerous changes and additions made in rewriting all parts of the book include the recent advancements in the field of nutrition which apply to the feeding of infants. The book remains practical and pertinent with a common sense approach. It is intended for use by the practitioner and student.

SCHOOLS AND HEALTH AGENCIES COOPERATE TO TEACH CHILDREN HEALTHFUL LIVING

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is important in good grooming" was of real concern to them.

Boys were vitally interested in learning how to build muscles. "To find out how food affects your weight" and "To find out how food affects your complexion" were of concern to both boys and girls. If we can tie nutrition education to such interests, we should get some real results.

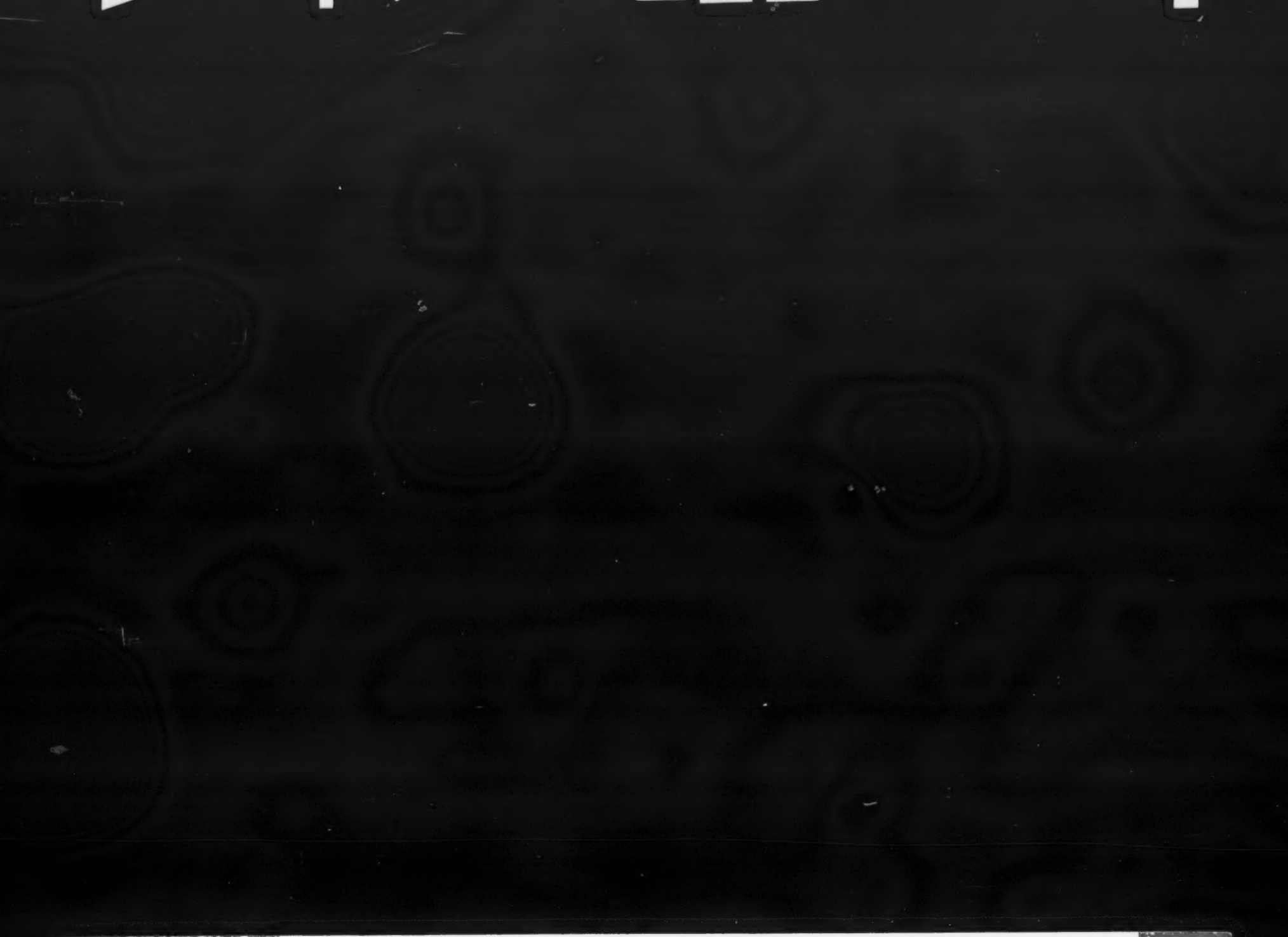
It is a difficult task to discover the health concerns and needs of children, but it's a job that can be done. And it does reveal the point at which children and teachers can begin building a curriculum together.

Selecting Materials

As a curriculum is developed, there is always the problem of selecting health materials. To be of most value to the teacher, materials should have certain characteristics which adapt them to the pupil. They should be written on the pupil's level and in his own language. A pamphlet discussing the technical aspects of nutrition will be of no use to a third grader. Materials should be colorful and presented in an interesting manner. Then, of course, they should be geared to the needs and concerns of the students.

Community health education agencies can be of great assistance in such an integrated health program. They can help in planning and carrying out teacher education activities. Special consultants might be provided for the schools to demonstrate teaching techniques and supply information.

Health Workshops

Community agencies might profitably sponsor health education workshops or assist with them. A health studio with samples of materials, films, and pupils' work could be helpful. The schools and agencies might work cooperatively to develop a film to illustrate teaching techniques.

Insight into interests of students and cooperation between schools and agencies will provide good learning experiences for boys and girls—learning experiences which will assure healthier living for our children.